L3 ANSWER 363 OF 363 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1971:458957 CAPLUS
DN 75:58957
TI Enzymic breakage and joining of deoxyribonucleic acid. IX. Synthesis and properties of the deoxyribonucleic acid adenylate in the phage T4 ligase reaction
AU Harvey, Clifford L.; Gabriel, Thomas F.; Wilt, Elaine M.; Richardson, Charles C.
CS Dep. Biol. Chem., Harvard Med. Sch., Boston, MA, USA
SO Journal of Biological Chemistry (1971), 246(14), 4523-30
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English
AB Polynucleotide ligase purified from Escherichia coli infected with bacteriophage T4 reacts with ATP to form a ligase-AMP complex which can be isolated by gel filtration. When this ligase-AMP complex is incubated with DNA contg. single strand breaks (nicks), there is a transfer of the AMP from the enzyme to the 5'-phosphoryl terminus of the nick to form a pyrophosphate bond (AppDNA). If the reaction is carried out at 0.degree. and at pH 5.6, AppDNA is accumulated. The AppDNA has been isolated and the character of the linkage of AMP to DNA has been elucidated by a no. of phys. and enzymic studies. The chem. properties of this enzymically synthesized AppDNA are identical with those of AppT(pT)n in which AMP has been chem. linked by a pyrophosphate bond to the 5'-terminal phosphate of an oligomer of thymidylic acid. App[poly(N)], whether synthesized by enzymic or chem. means, serves as an intermediate in the reaction which is catalyzed by the T4 ligase, and in which phosphodiester bond formation is accompanied by stoichiometric release of adenosine 5'-phosphate. The reaction occurs in the absence of ATP and is specific for nicks in duplex polynucleotides. If the enzyme is first incubated with ATP, the reaction is strongly inhibited. A temp.-sensitive polynucleotide ligase purified from E. coli cells infected with a mutant of T4 bacteriophage is unable to carry out either this reaction or the over-all joining reaction at elevated temps. When dAMP is substituted for AMP in the chem. synthesized polynucleotide intermediate, joining occurs at 8% the normal rate. No joining is detected if GMP is used as the activating species. The rates of joining of d(pT)7, d(pT)12, AppT(pT)6, and AppT(pT)11 in the presence of poly d(A) have been detd. at various temps., and provide a sensitive method for the anall. of secondary structure of polynucleotides.
IT **34727-55-4P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)
RN 34727-55-4 CAPLUS
CN Adenosine, 2'-deoxy-, 3'-(dihydrogen phosphate), 3'.fwdarw.5'-anhydride with 5'-O-phosphorylthymidylyl-(3'.fwdarw.5')-thymidylyl-(3'.fwdarw.5')-thymidylyl-(3'.fwdarw.5')-thymidylyl-(3'.fwdarw.5')-thymidylyl-(3'.fwdarw.5')-thymidylyl-(3'.fwdarw.5')-thymidylyl-(3'.fwdarw.5')-thymidylyl-(3'.fwdarw.5')-thymidylyl-(3'.fwdarw.5')-thymidylyl-(3'.fwdarw.5')-thymidylyl-(3'.fwdarw.5')-thymidine (8CI) (CA INDEX NAME)

SEQ 1 attttttttt ttt

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